Compiler Construction

Hans de Nivelle

Due: 14 October 2009

1. (a) Draw an NDFA (non-deterministic finite automaton) for decimal integers, possibly preceded by a unary $-$ or a unary $+$.

   (b) Draw an NDFA for unsigned hexadecimal numbers, preceeded by a doller sign. Like in $\$FED7$.

   (c) Draw a complete NDFA for floating point numbers. It should accept `44,   44.0,     4.4E01, 440E-1.`

   (d) Draw an NDFA for C-style strings. Do not forget to allow escapes of form `\n, \t, \', \", \XYZ` , where XYZ is an octal number.

   (e) Same for C^{++} comments, starting with `/*` and ending with `*/` .

   Solutions for task 1 should be handed in.

2. (a) Get the files `tokenizer.h, tokenizer.cpp, Makefile` and make sure that you can compile them. Make sure that you understand how they work.

   (b) Test the reader. Convince yourself that it never reads beyond end-of-file.

   (c) Run the tokenizer on some input file. Make sure that it never hangs.

3. (a) Implement two functions `nexttoken( )` for two of the NDFAs in Task 1. You may choose for which ones.

   (b) Combine the two functions of the previous task into one.